Tork Order ID 89392 Page 1 August-24-12 1:49:36 PM Item ID: D212-664-107 Accept *N900040100* Setup Start **Revision ID:** Item Name: Crosstube Low Standard Fwd Start Date: Start Qty: 1.00 8/24/12 **Cust Item ID:** Required Date: 9/14/12 Req'd Qty: 1.00 **Customer:** Reference: Run Start 74 Tooling: Process Plan: ML5 Date: 12/08 **Approvals:** Date: Stop Date: SPC (Y/N): QC: Date: Reject Sequence ID/ Operation Set Up/ Tool ID Tool # Plan Accept Reject Insp. Work Center ID Description **Run Hours** Code Qty Qty Number Stamp **Draw Nbr Revision Nbr** D212-664-147 Rev B (DEO) 100 0.00 DOCUMENT CONTROL *100* DC Memo Document Control Photocopy bluefile and create labels as per PPP D212-664-107 D6019-128 (ID = 2.125") = CHG 002 0.00 110 Packaging *110* 0.00 Packaging Memo Packaging 0.00 120

CNC Bend 2
CNC Alpha 160 Bender

120

BENDING MACHINE - CROSSTUBES

Memo 0.00

Bend tube as per Dwg D212-664-107 using CNC bender program 212-107

SU) MO/Em

12/11/01

											DQA:	T Datë:	
NCR:	Yes	/ No				WORK ORDER NON-	COI	NFORM	MANCE / UP	DATE			•
											QA Closed:	Date:	
Work Ord	er.				-	DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Work Ord						Rework	7		Skid-tube	Crosstube		Water Jet	Engineering
Part	No.					Scrap]	1	Machining	Small Fab	Pro	d. Eng. Coor.	Quality
						Use-as-is		1	noforming	Finishing	Rec/Sto	re/Packaging	Other
NCR	No.				 	Work Order Update			Large Fab	Composite	1	Supplier	
Root					Descri	ption of work order update		Initial	Ac	ction	Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Ch	nief Eng	Desc	cription	Date	Verification	QC Inspector
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Landi		1			_	General	_	٦. ٠		<u> </u>	٦		J
	\vdash	Bending			_ -	Bend	-	Grain			Ovalized	_	Pressure/Forced
	\vdash	Centre No	ot Concei	ntric to	^{O/S} -	BOM/Route	\vdash	Hardwa		<u> </u>	Over/Under	 	Temperature/Cure
		Cracks				Broken/Damaged	 	-	ion Incomplete	,, ,	Part Incorre	}	Weld
	\vdash	Crushed/	Crimped.		<u> </u>	Burrs	 	4	ions Incomplete/	/Unclear	Part Lost/M		Wrong Stock Pulled
	<u> </u>	Cuffs	_		<u> </u>	Contamination	<u> </u>	Mainte		<u> </u>	Part Moved		
	\vdash	Heat Trea				Countersink	\vdash	Mislabe		<u> </u>	Positioned \	_	٦
1	1	Inspection	n Strip in	Tube	- 1	Cut Too Short	1	Misread	1		Power Loss	/Surge	Other

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

er ID 89 49:36 PM	9392		*893	392*							Page 2	!
		The second se	Accept	*N900	040	100)*				• •	
8/24/12 9/14/12	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item ID: Customer:								
Process P	lan:	Date:	Tooling: SPC (Y/N):]					
)	Operation Description QC15- Crosstube Dimen	sional Check	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reje Qty		•	Insp. Stamp	
	D212-664- Crosstube Lo 8/24/12 9/14/12 Process P	D212-664-107 Crosstube Low Standard Fwd 8/24/12 Start Qty: 1.00 9/14/12 Req'd Qty: 1.00 Process Plan: QC: Operation Description	### D212-664-107 Crosstube Low Standard Fwd 8/24/12	D212-664-107 Crosstube Low Standard Fwd 8/24/12 Start Qty: 1.00 *1 * 9/14/12 Req'd Qty: 1.00 *1 * Process Plan: Date: Tooling: SPC (Y/N): Operation Set Up/ Run Hours QC15- Crosstube Dimensional Check Operation Operation Set Up/ Run Hours QC15- Crosstube Dimensional Check	D212-664-107	D212-664-107	D212-664-107	D212-664-107	D212-664-107	D212-664-107	D212-664-107	Accept NOONO40100 Setup Start NS1

Memo

Quality Control

											DQA:	Date	
NCR:	Yes	/ No				WORK ORDER NON-	CO	NFORM	MANCE / UP	DATE	0.4.51		
· · · - · · · · · · · · · · · · · · · ·						r					QA Closed:	Date	:
Work Orde	or.					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Work Orac	٠٠٠.					Rework	7		Skid-tube	Crosstube	1	Water Jet	Engineering
Part I	No.					Scrap		1	Machining	Small Fab	Pro	d. Eng. Coor.	Quality
						Use-as-is	1	Therm	noforming	Finishing	Rec/Sto	re/Packaging	Other
NCR I	No.					Work Order Update			Large Fab	Composite]	Supplier	
Root					Descri	ption of work order update	T	Initial	Ac	tion	Sign &		
Cause		Date	Step	Qty		or Non-conformance	Cł	nief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data													
Equip/Tooling	Ш												
Operator													
Material	_							-					
Setup	Ш							3) ·					
Other	Щ						1	-					
Process													
Supplier													
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Unapproved		<u> </u>										<u> </u>	
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Landi		7			_	General		٦			,	_	_
	-	Bending				Bend		Grain			Ovalized		Pressure/Forced
		Centre N	ot Conce	ntric to	o/s	BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure
	<u></u>	Cracks				Broken/Damaged	L	Inspecti	ion Incomplete		Part Incorre	ct	Weld
		Crushed/	Crimped.			Burrs		Instruct	ions Incomplete/	Unclear	Part Lost/M	issing	Wrong Stock Pulled
		Cuffs				Contamination		Mainte	enance		Part Moved		
		Heat Trea	at	**		Countersink		Mislabe	eled		Positioned \	Wrong	_
		Inspectio	n Strip in	Tube		Cut Too Short		Misread	t		Power Loss,	/Surge	Other
		Ripples ir	Bend			Drill Holes		Offset					

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Orde August-24-12 1		9392		*893	392*							Page
Item ID: Revision ID:	D212-664-1	07		Accept	*N900	040	100)*	Setup S	tart	*N	S1*
Item Name:	Crosstube Lo	w Standard Fwd							S	Stop	*N!	S2*
Start Date: Required Date:	8/24/12 9/14/12	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item I Customer:	D:						
Reference:								F	Run S	tart	*NI	D1*
Approvals:	Process Pla	an:	Date:	Tooling: SPC (Y/N):		ate:			S	Stop	*N	R2*
Sequence ID/ Work Center I	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Rejec Qty		eject umber	Insp. Stamp
140		Crosstubes		0.00								
140 Crosstubes		Memo		0.00						_		
Crosstubes		*****	ENSURE PROPER JIG	POSITIONING ******	***	7						
		1-Cut tube a	s per inspection dwg and	deburr ends. ***ensure sa	w is square***	M	12-1	1-2				
		2-Position c	uffs on tube ensure prope	er positioning	\							
			as per dwg using DT857 I DT8549 as per QSI 10	7 location #7 & # 212 ULI	using jig		7	12-	11-5	-		
		4-Transfer d	rill rivet holes from cuff	into tube.		> /	CPVI	, 0	• •			

5-Identify cuff position and Batch # on each and identify tube as per dwg D212-

6- *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***
Inspect surface damage

7- Deburr and realodine cuff.

NCR: Y	es / No				WORK ORDER NON-C	CON	IFORN	MANCE / UPE	DATE			· ·
										QA Closed:	Date:	
Work Orde	r:				DISPOSITION				AGAINST DE	PARTMENT	PROCESS	
Part N					Rework Scrap Use-as-is		Therm	Skid-tube Machining noforming	Crosstube Small Fab Finishing		Water Jet d. Eng. Coor. e/Packaging	Engineering Quality Other
NCR N	lo		··· · · ·		Work Order Update			Large Fab	Composite		Supplier	
Root				Descri	ption of work order update	lr	nitial	Act	ion	Sign &		
Cause	Date	Step	Qty	(or Non-conformance	Chi	ef Eng	Descr	ription	Date	Verification	QC Inspector
Doc/Data												
Equip/Tooling	*											
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Supplier												
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Landir	ng Gear			_	General					,		٠.
	Bending				Bend	Ш	Grain			Ovalized		Pressure/Forced
	Centre N	ot Conce	ntric to	o/s	BOM/Route	Ш	Hardwa	re		Over/Under	tolerance	Temperature/Cure
	Cracks				Broken/Damaged		Inspect	ion Incomplete		Part Incorre	ct	Weld
3	Crushed/	Crimped.	-		Burrs		Instruct	ions Incomplete/U	Jnclear	Part Lost/Mi	ssing	Wrong Stock Pulled
	Cuffs				Contamination		Mainte	enance		Part Moved		
	Heat Trea	at			Countersink		Mislabe	eled		Positioned V	Vrong	_
	Inspectio	n Strip in	Tube		Cut Too Short		Misread	t		Power Loss/	Surge	Other
	Ripples in	n Bend			Drill Holes		Offset					

Out of Calibration

Out of Sequence

Outside Dimensions

` Date:

DQA:

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work	Order	ID	89392

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Page 4

August-24-12	1:49:36 PM			ი	97					ı age
Item ID: Revision ID:	D212-664-	107		Accept	*N900	004010	n* s	etup Stai	rt *N	S1*
Item Name:	Crosstube Lo	ow Standard Fwd						Sto	*N	S2*
Start Date:	8/24/12	Start Qty: 1.00	*1*		Cust Item	ID:			-	
Required Date	e: 9/14/12	Req'd Qty: 1.00	*1*		Customer	:				
Reference:							_	~.		
Approvals:	Process P	lan:	Date:	Tooling:	I I	Date:	R	tun Stai	1/3	R1*
	QC:		Date:	SPC (Y/N):	I	Date:		Sto	*N	R2*
Sequence ID/ Work Center	ID	Operation Description		Set Up/ Run Hours	Tool ID	Tool # Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150				0.00		233	()	,		
QC		Memo		0.00		289		2 -1/	-/-	
Quality Control		*** WEAR	LATEX GLOVES WH	EN HANDLING CROSSTU	BE***)	,		
160				0.00						
160							1	d		4
HandFXtube		Memo		0.00				φ	Ψ_	12-11
Hand Finishing Cr	rosstubes	*** WEAR 1	LATEX GLOVES WHI	EN HANDLING CROSSTU	BE***					
		1- CLEAN (CROSSTUBE WITH W	/ASH'N WIPE						
180		Outsource process - NDT	per QSI038 4.1	0.00			a(,) }	,	
180 Outsource2		Memo		0.00			(X)	121	14/09	
Outsource process	- NDT		LATEX GLOVES WHI	EN HANDLING CROSSTU	BE***					
		Liquid Penet Issue P/O: /	trant Inspection as per (365 LPI as per A	QSI 038Or STM 1417						

Level 2 Attach copy of NDT results to work order

NCR: Yes / No	WORK ORDER NON-CO	NFORMANCE / UPI	DATE	
			QA	Closed:
Work Order:	DISPOSITION		AGAINST DEPAR	RTMENT/
work Order.	Rework	Skid-tube	Crosstube	
Part No	Scran	Machining	Small Fab	Prod

Work Orde	ar.					DISPOSITION				AGAINST DE	PARTMENT	PROCESS	
Part N						Rework Scrap Use-as-is Work Order Update			Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite		Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	otion of work order update	1	nitial	Ac	tion	Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data													
Equip/Tooling		ł											
Operator													
Material													
Setup													
Other													
Process				191	İ								
Supplier													
Training													
Unapproved							_						
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Landir	ng Gear					General		1		_	7	_	7
	_	nding				Bend	_	Grain		_	Ovalized	_	Pressure/Forced
	Cei	ntre No	t Concer	ntric to	o/s	BOM/Route		Hardwa			Over/Under		Temperature/Cure
ure.	_	icks				Broken/Damaged		1	ion Incomplete		Part Incorre	 	Weld
*	_		Crimped.			Burrs		•	ions Incomplete	'Unclear	Part Lost/M	_	Wrong Stock Pulled
	Cut				_	Contamination		Mainte			Part Moved		
	He	at Trea	t		_	Countersink		Mislabe			Positioned \	_	_
	_		Strip in	Tube		Cut Too Short	\vdash	Misrea	d		Power Loss,	'Surge	Other
	—	ples in			L	Drill Holes		Offset					
	_	-	aves in E		n L	Drawing		4	Calibration				
	$\boldsymbol{\vdash}$	_	equence			Finish	_	Out of	Sequence				
	l lwa	ve/Twi	ist in Tub	oe .	i	Folio		Outside	Dimensions				

DQA:

` Date:

Date:

Work Order August-24-12 1:49			*893	92*				Page 5	_
tem ID: D	212-664-107		Accept	*N90004	010 0)* s	etup Start	14.71	_
Item Name: Ci	osstube Low Standard Fwd						Stop	*NS2*	
Start Date: 8/	24/12 Start Qty:	1.00 *1*		Cust Item ID:					
Required Date: 9/ Reference:	14/12 Req'd Qty:	1.00 *1*		Customer:				34	
Approvals:	Process Plan:	Date:	Tooling:	Date:		R	tun Start	INIKI	
(QC:	Date:	SPC (Y/N):	Date:			Stop	*NR2*	
Sequence ID/ Work Center ID	Operation Description		Set Up/ Run Hours	Tool ID Tool	# Plan Code	Accept Qty		Reject Insp. Number Stamp	-
190			0.00						
19N	Packaging							12/11/8 (1)	
Packaging	Mei		0.00						
Packaging	Ens	ure copy of NDT results attached	d to work order.						
200	QC5- Inspect pa	rt completeness to step on W/O	0.00					DAS	
200						1	•	05 12	11 6
QC	Mei	mo	0.00					-9-89-10-1	
Quality Control	***	WEAR LATEX GLOVES WHE	EN HANDLING CROSSTUBI	<u> </u>					
	Insp	pect for damage & ensure results	are as per Dwg D212-664-107	7					
202			0.00						
202 HandFXtube	Mei	mo	0.00					Ø Af	
Hand Finishing Crosst	ibes ***	WEAR LATEX GLOVES WHI	EN HANDLING CROSSTUBI	***				19.11.0	

1- PRESSURE WASH AND THEN USE WASHH'N WIPE TO CLEAN

CROSSTUBE BEFORE CHEMICAL CONVERSION

											DQA	:` Date:	
NCR:	Yes	/ No				WORK ORDER NON-	COI	NFORM	MANCE / UPD	ATE			•
	į										QA Closed	: Date:	
Work Ord	er.					DISPOSITION				AGAINST DE	PARTMENT	r/PROCESS	
Part I	•					Rework Scrap Use-as-is		ſ	Skid-tube Machining Moforming	Crosstube Small Fab Finishing	4	Water Jet od. Eng. Coor.	Engineering Quality Other
NCR I	No.					Work Order Update]	i .	Large Fab	Composite]	Supplier	
Root					Descri	ption of work order update		Initial	Acti	on	Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Descri	ption	Date	Verification	QC Inspector
Doc/Data													
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Landi	ng (Gear				General		_			_		
		Bending				Bend		Grain			Ovalized		Pressure/Forced
		Centre No	ot Concer	ntric to	o/s	BOM/Route		Hardwa	re		Over/Unde	r tolerance	Temperature/Cure
9		Cracks				Broken/Damaged		Inspecti	on Incomplete		Part Incorr	ect	Weld
+		Crushed/	Crimped.			Burrs		Instruct	ions Incomplete/U	nclear	Part Lost/N	Aissing	Wrong Stock Pulled
		Cuffs				Contamination		Mainte	nance		Part Move	d	·
	Г	Heat Trea	it			Countersink		Mislabe	led		Positioned	Wrong	
		Inspectio	n Strip in	Tube		Cut Too Short		Misread	1		Power Loss	s/Surge	Other

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Orde		392		*893	192*						Page 6
tem ID: Revision ID: tem Name:	D212-664-10	v Standard Fwd		Accept	*N900	040	100)* s	etup Star Stop	171	S1* S2*
ŧ	8/24/12	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item I Customer:	D:					
Approvals:	Process Pla	n:	Date:	Tooling:	Da	ate:		R	un Star	¹ *N	R1*
ippi ovuis.	QC:		Date:	SPC (Y/N):		ate:			Stop	` *N	R2*
Sequence ID/ Work Center I	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
*205 *205*		QC7-Inspect Chemical C	Conversion Coat	0.00							0AS 12110
QC Quality Control		Memo *** WEAR	LATEX GLOVES WHEN		BE***						9-89 ·
210				0.00							
210		Crosstubes							Ø	Ø	AQ
Crosstubes Crosstubes		Memo *** WEAR	LATEX GLOVES WHEN	0.00 I HANDLING CROSSTU	BE***						12-11-9
		1-Rivet Cuf A/R SIKA	fs as per Dwg D212-664- AFLEX -241/-291 BAT	147. with Sika flex in Bets CH: 23353	ween tube & Cuff						
* 21 5		QC5- Inspect part compl	leteness to step on W/O	0.00				\			DAS 05 12 11 0°
QC		Memo		0.00				_			<u>8-89 </u>

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Quality Control

			DQA:	`_Date?
NCR:	Yes / No	WORK ORDER NON-CONFORMANCE / UPDATE		•
			04 (1	Data

											QA Closed:	Date	:
Work Orde	er:					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Part N	۔ No					Rework Scrap Use-as-is		ſ	Skid-tube Machining noforming	Crosstube Small Fab Finishing		Water Jet d. Eng. Coor. re/Packaging	Engineering Quality Other
NCR N	۷o. <u>-</u>			<u> </u>		Work Order Update	1		Large Fab	Composite		Supplier	
Root					Descri	ption of work order update	ln	itial	Ac	ction	Sign &		
Cause		Date	Step	Qty		or Non-conformance	Chie	ef Eng	Desc	cription	Date	Verification	QC Inspector
Doc/Data													
Equip/Tooling								,					
Operator	Ш			İ									
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Setup	Ш											•	
Other	Ш								:				
Process `	Ш												
Supplier	Ш												
Training	Ш												
Unapproved	Ш			İ			<u> </u>					<u> </u>	
							AULT	CATE	GORY				
Landi						General				_	-	_	_
		Bending			L	Bend	\vdash	Grain			Ovalized		Pressure/Forced
		Centre No	ot Conce	ntric to	o/s	BOM/Route	\vdash	Hardwa			Over/Under	<u> </u>	Temperature/Cure
	\vdash	Cracks			<u> </u>	Broken/Damaged	-	•	on Incomplete	<u></u>	Part Incorre		Weld
		Crushed/0	Crimped.			Burrs	_		ions Incomplete,	/Unclear	Part Lost/M		Wrong Stock Pulled
	\vdash	Cuffs				Contamination			nance		Part Moved		
	⊢. ⊣	Heat Treat				Countersink	\vdash	Mislabe		<u> </u>	Positioned \		 -
	$\boldsymbol{\vdash}$	Inspection Strip in Tube				Cut Too Short	\vdash	Misread	i	L	Power Loss/	/Surge	Other
	Ripples in Bend				Ļ	Drill Holes	\vdash	Offset					
	Torque Waves in Extrusion					Drawing	\vdash		Calibration	•			
	${} =$	Turning S				Finish	Щ	Out of S	Sequence				
i i	1 1	Wave/Tw	ist in Tub	96		Folio	1 (Outside	Dimensions				

Work Orde		9392		*8939	12*						Page 7
Revision ID:	D212-664-	107 ow Standard Fwd		Accept	*N90	0040	100)*	Setup Start Stop	I A	S1* S2*
Start Date: Required Date: Reference:	8/24/12 9/14/12	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Iter Custome						
Approvals:	Process P		Date:	Tooling:		Date:]	Run Start	17	R1*
••	QC:		Date:	SPC (Y/N):		Date:			Stop	*N	R2*
Sequence ID/ Work Center II	D	Operation Description		Set Up/ Run Hours	Tool II	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
*220 *220 *220 SprayPaint		SprayPaint Memo		0.00)AS 05 12:11:11
Spray Painting			LATEX GLOVES WHEN ide and outside crosstube	N HANDLING CROSSTUBE* as per QSI 005 4.2	***						
		F Start Time: Fininsh Tim		Imron as per QSI 005 4.2							
		PAINT: Start Time: Finish Time	11:00 11:00								

250

QC14- Inspect Spray Paint

0.00

230

Memo

0.00

Quality Control

Wrap in plastic bag to protect from scratches

ZT 12-11-11 (x)

												DQA:	Da	ite:	
NCR:	Yes	/ No				WORK ORDER NON-	COI	VFORM	MANCE / UP	DATE					•
											_	QA Closed:	Da	ite:	
Work Ord	or.					DISPOSITION				AGAINST D)EI	PARTMENT	PROCESS		
Work Ord	-				···-	Rework	7		Skid-tube	Crosstube	٦		Water Jet		Engineering
Part I	No.					Scrap	1		Machining	Small Fab	┨	Pro	d. Eng. Coor.		Quality
	-		-			Use-as-is]	Thern	noforming	Finishing		Rec/Stor	e/Packaging		Other
NCR I	No.					Work Order Update	إ		Large Fab	Composite _			Supplier		
Root					Descri	ption of work order update	Τ	Initial	Ac	tion	\neg	Sign &			
Cause		Date	Step	Qty	1	or Non-conformance	1	nief Eng		ription		Date	Verificatio	n	QC Inspector
Doc/Data							1								
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Operator							1								
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Setup		ر ·													
Other	-	Ç.													
Process	Ш										1				
Supplier	Ш														
Training	Ш										ļ				
Unapproved			<u> </u>												
							AUI	LT CATE	GORY		_		<u>-</u>		
Landing Gear						General	_	7		_		7		_	1
	\vdash	Bending				Bend	<u>_</u>	Grain		1		Ovalized		_	Pressure/Forced
	Centre Not Concentric to O/S					BOM/Route	_	Hardwa			_	Over/Under			Temperature/Cure
	Cracks					Broken/Damaged	<u>_</u>	4 `	ion Incomplete	1		Part Incorre		\perp	Weld
	Crushed/Crimped. Burrs							Instruct	ions Incomplete/	'Unclear		Part Lost/M	issing		Wrong Stock Pulled

Maintenance

Out of Calibration

Out of Sequence

Outside Dimensions

Mislabeled

Misread

Offset

Part Moved

Positioned Wrong

Power Loss/Surge

Other

Contamination

Countersink

Cut Too Short

Drill Holes

Drawing

Finish Folio

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Cuffs

Heat Treat

Inspection Strip in Tube

Torque Waves in Extrusion

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Orde		392		*893	392*						Page 8	
tem ID: Revision ID:	D212-664-10)7		Accept	*N900	0401	იი*	Set	up Start	*N	S1*	_
tem Name:	Crosstube Lov	v Standard Fwd							Stop	*N	S2*	
Start Date: Required Date: Reference:	8/24/12 9/14/12	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item II Customer:	D:				-		
Approvals:	Process Pla	n:	Date:	Tooling: SPC (Y/N):		nte:		Ru	n Start Stop	171	R1* R2*	
Sequence ID/ Work Center II	D	Operation Description	<u> </u>	Set Up/ Run Hours	Tool ID			_	Reject Qty	Reject Number	Insp. Stamp	_
*740 *740* Crosstubes Crosstubes		I-Abrade m	e as per Dwg D212-664- ating surfaces of support ea with 4105S wash 'n' v	t and crosstube with 400 gri	it sandpaper,			1			DAS 05 12.	11
		A/R Pro	ports with Proseal 890 pseal 890 Batch: 12	oer DSI9563 and QSI 015								
250 *250* QC		QC5- Inspect part compl	leteness to step on W/O	0.00 AS 16 0.00 1 5	1714)				-			

Quality Control

											DQA:	Date	2.
NCR: \	es /	' No				WORK ORDER NON-C	O	NFORM	ANCE / UP	DATE			•
											QA Closed:	Date	2:
Work Orde	or.					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Part N	_					Rework Scrap Use-as-is		ſ	Skid-tube Machining Moforming	Crosstube Small Fab Finishing	4	Water Jet d. Eng. Coor. re/Packaging	Engineering Quality Other
NCR 1	No					Work Order Update			Large Fab	Composite	Rec/Stol	Supplier	Journel
Root					Descri	ption of work order update	ı	nitial	Ac	tion	Sign &		
Cause		Date	Step	Qty	·	or Non-conformance	Ch	ief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data													
Equip/Tooling													
Operator													
Material								٠					
Setup													
Other '													
Process							İ						
Supplier				,								:	
Training													
Unapproved								:					
						· F.	AUL	T CATE	GORY	***			
Landi	ng Ge	ar				General		_			_	_	
	В	ending				Bend		Grain			Ovalized		Pressure/Forced
	Centre Not Concentric to O/S					BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure
	Cracks					Broken/Damaged		Inspecti	on Incomplete		Part Incorre	ct [Weld
	Crushed/Crimped,					Burrs		Instruct	ions Incomplete/	'Unclear	Part Lost/M	issing	Wrong Stock Pulled
		uffs				Contamination		Mainte	nance		Part Moved	_	
	Heat Treat					Countersink	Г	Mislabe	led		Positioned \	Vrong	
	Ir	spection	Strip in	Tube		Cut Too Short	Г	Misread	!		Power Loss,	Surge	Other
	$\square_{\mathbb{R}}$	innles in	Rend			Drill Holes		Officet		<u> </u>	_	_	-

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Order		0392		*893	92*						Page 9
Revision ID:	212-664-1	07 ow Standard Fwd		Accept	*N900040	1100°	k s	etup S	tart top	*NS	
Start Date: 8/. Required Date: 9/ Reference:	24/12 14/12	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item ID: Customer:						
	Process Pl QC:	an:	Date:		Date:		R		tart top	*NF	R1*
Sequence ID/ Work Center ID	<u> </u>	Operation Description		Set Up/ Run Hours	Tool ID Tool		Accept Qty	Reject Qty		Reject Number	Insp. Stamp
255 *955* Řáckaging Påckaging		Pick Kit Memo		0.00				_	4) Ufuj	/15
260 *クらの* QC Quality Control		QC4- 100% Inspect kits Memo	for completeness	0.00 (5) 0.00 (5) 13/1 (5)	₹)		1_		***********		
270 * 970 * Packaging		Packaging Memo		0.00 Rg.	c ~ 103					12/1	1195

					DQA:	Date	
NCR: Yes / No	WORK ORDER NON-CO	NFORM	ANCE / UPD			_	•
					QA Closed:	Date	
Work Order:	DISPOSITION			AGAINST DEI	PARTMENT	PROCESS	
Work Order.	Rework	S	kid-tube	Crosstube		Water Jet	Engineering
Part No.	Scrap	ı	lachining	Small Fab	Pro	d. Eng. Coor.	Quality
	Use-as-is	Thermo	oforming	Finishing	Rec/Stor	e/Packaging	Other
NCR No.	Work Order Update	L	arge Fab	Composite		Supplier	
		1 1		•	C: 0		
1 1 1 1	ption of work order update	Initial	Acti		Sign &	Varification	OC Inspector
	or Non-conformance C	Chief Eng	Descri	iption	Date	Verification	QC Inspector
Doc/Data							
Equip/Tooling							
Operator							
Material							
Setup							
Other							
Process							
Supplier	İ						
Training							
Unapproved	EAL	JLT CATEG	ORV		l	<u> </u>	İ
Landing Gear	General	CAILO	<u> </u>				
Bending	Bend	Grain			Ovalized	Γ	Pressure/Forced
Centre Not Concentric to O/S	BOM/Route	Hardware	e		Over/Under	tolerance	Temperature/Cure
Cracks	Broken/Damaged		n Incomplete		Part Incorre	 	Weld

Instructions Incomplete/Unclear

Maintenance

Out of Calibration

Out of Sequence

Outside Dimensions

Mislabeled

Misread

Offset

Part Lost/Missing

Positioned Wrong

Power Loss/Surge

Part Moved

Wrong Stock Pulled

Other

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Crushed/Crimped.

Inspection Strip in Tube

Torque Waves in Extrusion

Cuffs

Heat Treat

Burrs

Contamination

Countersink

Cut Too Short

Drill Holes

Drawing

Finish

Work Ord August-24-12		9392		*893	392*							Page 10
Item ID: Revision ID: Item Name:	D212-664-	107 ow Standard Fwd		Accept	*N9000	740	100)* s	Setup S	Start Stop		S1* S2*
Start Date: Required Date Reference:	8/24/12 : 9/14/12	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item ID Customer:) :						
Approvals:	Process P	Plan:	Date:	Tooling: SPC (Y/N):	Dat			F		Start Stop		R1* R2*
Sequence ID/ Work Center I 280 280 20 20 20 20 20 20 20 20 20 20 20 20 20	ID	Operation Description QC21- Final Inspection Memo	- Work Order Release	Set Up/ Run Hours 0.00	Tool ID	Tool#	Plan Code	Accept Qty	Rejec Qty	10	Reject Number	Insp. Stamp

												DQA:	• Date	? :	
NCR:	Yes	/ No				WORK ORDER NON-	100	NFOR î N	ANCE / UP	DATE		_			
											Q	A Closed:	Date	e:	<u> </u>
Work Ord	or:					DISPOSITION				AGAINST DE	EPA	ARTMENT/	PROCESS		
Work Ordi	-					Rework	7		Skid-tube	Crosstube	7		Water Jet	\neg	Engineering
Part i	No.					Scrap	1		Machining	Small Fab	1	Proc	d. Eng. Coor.	٦	Quality
	•					Use-as-is		Therm	noforming	Finishing		Rec/Stor	e/Packaging		Other
NCR I	No.		·			Work Order Update]		Large Fab	Composite			Supplier	╝	
Root				Π	Descri	ption of work order update	T	Initial	Ac	tion		Sign &			
Cause		Date	Step	Qty	C	or Non-conformance	Cr	nief Eng	Desc	ription		Date	Verification	_	QC Inspector
Doc/Data															
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Other			İ												
Process							ı								
Supplier															
Training				1											
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						F	AUI	LT CATE	GORY						
Landi	ing G	Gear				General		_		-			-		•
		Bending				Bend	L	Grain			_ c	Ovalized			Pressure/Forced
		Centre N	ot Conce	ntric to O	/s	BOM/Route		Hardwa	re .		_ c	Over/Under	tolerance		Temperature/Cure
		Cracks				Broken/Damaged		Inspecti	on Incomplete		_ P	art Incorre	ct [Weld
		Crushed/	Crimped	-		Burrs		Instruct	ions Incomplete/	/Unclear	_ P	art Lost/Mi	ssing		Wrong Stock Pulled
1		Cuffs				Contamination		Mainte	nance		P	art Moved			
	Heat Treat					Countersink		Mislabe	led		P	ositioned V	Vrong _		
		Inspectio	n Strip in	Tube		Cut Too Short		Misread	i		P	ower Loss/	Surge [Other
		Ripples in	n Bend			Drill Holes		Offset		_			_		

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Picklist Print

August-24-12 1:49:36 PM

Work Order ID:

89392

Parent Item:

D212-664-107

Parent Item Name:

Crosstube Low Standard Fwd

Start Date: 8/24/12

Required Date: 9/14/12

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:A New Issue 07.09.12 EC verified by: JLM IPP Rev:B ECN 1100 08-01-11 DD verified by: EC

IPP Rev:C Ecn 1121 08-02-25 DD Verified by:ec DD verf:EC IPP Rev:E 11.10.17 added SI

02-25 DD Verified by:ec IPP Rev:D 10.05.27 added pick kit IPP Rev:E 11.10.17 added SEQ 215 DD verf:EC IPP

REV:F 11.11.03 as per chg003 DD verf:EC

Component Item ID/	Replacement	Mfa/	D:-	Duimour	Last	Douts	Unit of	Qty on	Qty per Kit	Total	Qty	Date	Status
Item Name	Item ID	Mfg/ Purch	Bin Item	Primary Location	Location	Route Seq ID	Measure		Qty per Kit	Qty	Issued	Issued	Status
D212-664-107TRN Crosstube Turning Detail		Manufactured	No	B891	14	140	Each	0.0000		1	TW	12-11	'- [
D3659-1 CUFF		Manufactured	No			220	Each	11.0000	2	2		747	
				Location		Loc Qty	<u>Lo</u>	c Code					
				ST477 874	69	1 1							
				ST482 874 884		10 4 6			2	2)	mo	12/. 1-11-61	///5
CR3212-4-06		Purchased	No			240	Each	796.0000	44	44	Af	12-11-9	9
CHERRY RIVET				Location 3	3301	Loc Qty	<u>Lo</u>	c Code	4	4)			•
				ST329	378	503 503							
				ST330		240							
				120 122	521 141	40 200							
				ST331		53							
					492 794	18 8							
					717	27							

										DQA:	Date	•
NCR: Y	es / No				WORK ORDER NON-C	ON	NFORM	ANCE / UP		OA Classel	Data	
										QA Closed:	Date	
Work Orde	ır.				DISPOSITION				AGAINST DE	PARTMENT	PROCESS	
Part N					Rework Scrap			Skid-tube Machining	Crosstube Small Fab	Pro	Water Jet d. Eng. Coor.	Engineering Quality
NCR N					Use-as-is Work Order Update			noforming Large Fab	Finishing Composite	Rec/Stor	e/Packaging Supplier	Other
Root				Descri	otion of work order update	1	nitial	Ac	tion	Sign &		
Cause	Date	Step	Qty	C	or Non-conformance	Ch	ief Eng	Desc	cription	Date	Verification	QC Inspector
Doc/Data												
Equip/Tooling												
Operator						1						
Material												
Setup												
Other												
Process												
Supplier												
Training												
Unapproved												
	****				F	AUL	T CATE	GORY				
Landir	ng Gear			_	General		1	•	 	٦	_	¬
	Bending			$oldsymbol{oldsymbol{oldsymbol{eta}}}$	Bend		Grain			Ovalized	_	Pressure/Forced
	Centre Not Concentric to O/S				BOM/Route		Hardwa			Over/Under	tolerance	Temperature/Cure
	Cracks				Broken/Damaged		i '	on Incomplete		Part Incorre	⊢	Weld
	Crushed/Crimped.				Burrs		4	ions Incomplete/	/Unclear	Part Lost/M	issing	Wrong Stock Pulled
	Cuffs				Contamination	—	Mainte			Part Moved		
·	Heat Treat				Countersink		Mislabe	eled	<u> </u>	Positioned V		
	Inspection Strip in Tube				Cut Too Short		Misread	i		Power Loss/	'Surge	Other
	Ripples in	n Bend			Drill Holes		Offset					
	Torque Waves in Extrusion				Drawing		Out of 0	Calibration				

Out of Sequence

Outside Dimensions

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Turning Sequence

Wave/Twist in Tube

Finish

August-24-12 1:49:36 PM

Work Order ID:	89392							
Parent Item:	D212-664-107					Start I	Date: 8/24/12	Required Date: 9/14/12
Parent Item Name:	Crosstube Low Standard Fwd					Start	Qty: 1.00	Required Qty: 1.00
D3595-063-450 RUBBER CUSHION	Manufactured	No		240	Each	165.0895	4	4 1/12.11.12
			Location	Loc Qty		Loc Code		
			LG	0.28				
			82511	0.28				
			LG051	154.7				
			80161	1.7				
•			84715	3				
			87478	130				
	H		87958	20				
	Rt 90968		MAT052	10.109474			<u> </u>	
			67353	2				<u></u>
			68893	6				
			70113	0.56				
			71354	0.2				— Λ
			74113	0.349474				/
			75597	1				
M\$21920-25 Clamp(per MIL-DTL-87	Purchased	No		240	Each	72.0000	4	4 V 12/11/2
Clamp(per MIL-D1L-6)	7630)		I 4	LacOb		Loc Code		
			Location	Loc Qty		Lot Code		
			LG050	72			-	
			116264	2				<u> </u>
			117998	4				
	134 120838		118142 119339	4				
	,		119339	2 2				
			120475	7				
			120920	46				
			122204	5			-	
D2893-1	Manufactured	No		240	Each	7.0000	2	2 = \// (1, 11, 2)
2.75 Support	Manufactured	140		2.0	24411	,,,,,,,	_	2 N/ 12 11:12
2.73 Support			Location	Loc Qty		Loc Code	C Table Labourery Made -	
_	L -000					<u>Loc Code</u>		
(3°	# 87289		LG052	7				
			72865 86733	2 5				_
			80/33	5		_		
August-24-12 1:49	D:36 PM		Shop	Packet Print	-			Page

									DQA:	Date:	
NCR:	res / No	ı			WORK ORDER NON-C	ONFOR	MANCE / UP				
									QA Closed:	Date:	
Work Orde	ar:				DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
WOIR Old					Rework		Skid-tube	Crosstube		Water Jet	Engineering
Part N	No. ·				Scrap		Machining	Small Fab	Pro	d. Eng. Coor.	Quality
	***************************************				Use-as-is	Ther	moforming	Finishing	Rec/Sto	re/Packaging	Other
NCR I	۷o				Work Order Update		Large Fab	Composite		Supplier	
										T	
Root				E .	ption of work order update	Initial	1	tion	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chief Eng	Desc Desc	ription	Date	Verification	QC Inspector
Doc/Data											
Equip/Tooling						:					
Operator											
Material											
Setup	etup 📗					1					
Other											
Process											
Supplier											
Training											
Unapproved											
					F.	AULT CATE	EGORY				
Landi	ng Gear			<u> </u>	General			·	_		-
	Bendin	g			Bend	Grain			Ovalized		Pressure/Forced
	Centre	Not Conce	ntric to	o/s	BOM/Route	Hardw	are		Over/Under	r tolerance	Temperature/Cure
	Cracks				Broken/Damaged	Inspec	tion Incomplete		Part Incorre	ect	Weld
	Crushe	d/Crimped			Burrs	Instruc	ctions Incomplete/	'Unclear	Part Lost/M	lissing	Wrong Stock Pulled
	Cuffs				Contamination	Maint	enance		Part Moved		_
	Heat To	eat			Countersink	Mislab	eled		Positioned \	Wrong	
	Inspect	ion Strip ir	Tube		Cut Too Short	Misread Power Loss/Surge				/Surge	Other

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

August-24-12 1:49:36 PM

Work Order ID: 89392 Required Date: 9/14/12 **Start Date: 8/24/12** Parent Item: D212-664-107 Start Qty: 1.00 Required Qty: 1.00 Crosstube Low Standard Fwd Parent Item Name: 4D3428-1 260 Each 13.0000 No Manufactured Placard Loc Oty Loc Code Location ST042 13 83582 85228 12 No 260 Each 87.0000 Purchased Location Loc Qty Loc Code ST340 77 122416 77 ST342 10 118422 2 119449 120187 4 120423 3 260 Each 869.0000 MS21042L6 No Purchased Nut Loc Qty Loc Code **Location** 314 578 122441 578 ST300 291 25 117677 3 118384 118927 48 15 119075 120308 200 123265 de 1294/10 260 Each 0.0000 AN960JD616 NAS1149D0663J No Purchased

Washer

											DQA:	Date:	
NCR:	res /	No				WORK ORDER NON-C	CONF	ORN	IANCE / UPI			_	•
											QA Closed:	Date:	
Work Orde	~~.					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Work Orde	٠٠. <u> </u>					Rework	1 		Skid-tube	Crosstube		Water Jet	Engineering
Part N	No.					Scrap			Machining	Small Fab	Pro	d. Eng. Coor.	Quality
,						Use-as-is	 .		oforming	Finishing	Rec/Store/Packaging		Other
NCR I	No.					Work Order Update	1		Large Fab	Composite		Supplier	
											· 		-
Root					Descri	ption of work order update	1	tial	Act	ion	Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Chie	f Eng	Descr	ription	Date	Verification	QC Inspector
Doc/Data				Ė									
Equip/Tooling	Ш					•							
Operator							ĺ						
Material	Ш												
Setup													
Other													
Process													
Supplier					İ								
Training					,]						
Unapproved													
						F.	AULT	CATE	GORY				
Landi	ng Gea	r				General	_				,		7
	Ве	nding				Bend	ЩG	irain			Ovalized	_	Pressure/Forced
Centre Not Concentric to O/S			BOM/Route	Шн	lardwa	re		Over/Under	tolerance	Temperature/Cure			
	∐ Cr	acks				Broken/Damaged	∐ Ir	rspecti	on Incomplete		Part Incorre	ct	Weld
	Cr	ushed/	Crimped.			Burrs	L Ir	nstructi	ions Incomplete/I	Jnclear	Part Lost/M	issing	Wrong Stock Pulled
	∐]Cu	ffs				Contamination		/lainte	nance		Part Moved		
	He	at Trea	t			Countersink	\square N	/lislabe	led		Positioned \	N rong	
	In:	pection	n Strip in	Tube		Cut Too Short	\prod_{i}	Misread Power Loss/Surge Other				Other	

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

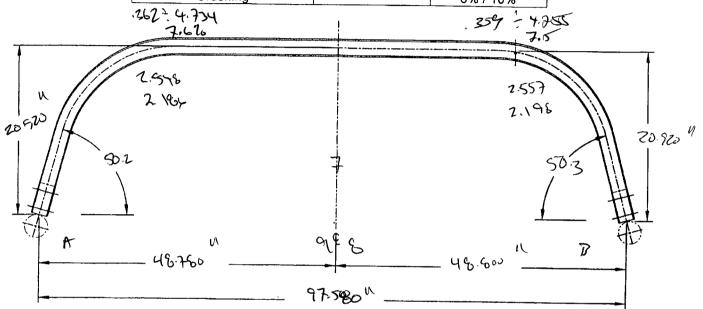
Drawing

Finish

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DART AEROSPACE LTD	Work Order:	89392
Description: Crosstube Low Fwd (205/212/412)	Part Number:	D212-664-107
Inspection Dwg: D212-664-147 Rev: B		Page 1 of 1

Required Dimension	Min	Max	
Height	20.79	21.05	
1/2 Span	48.55	48.81	
Angle	49	52	
Total Span	97.1	97.62	
Bending Passes	8		
Crushing		6% / 10%	



Side A MUDD	α Side B
9 1	83
7.67.	7.5%
Comments	
crushing OgP	Asses.
\	
7. crushing @	& Daves
	7.67. Comments Crushing Q9P

QC15 Inspection	10AS)
Date	16 17/11/07
Bate	1 CIVID'S

Rev	Date	Change	Revised by	Approved
Α	08.02.29	New Issue	KJ/JM	3.pp.0.00
В	10.01.21	Dwg Rev updated	KJ 10	
С	12.04.16	Added bending, crushing dimensions	KJ da	10

Item	Qty -147	Qty -147B	Part Number	Description
1_1_	X		D212-664-147	CROSSTUBE ASSEMBLY (205/212/412 LOW FWD)
2		<u> </u>	D212-664-147B	CROSSTUBE ASSEMBLY (214 LOW FWD)
3	1	1	D6019-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	2	2	D3659-1	CUFF
7	4	4	MS21920-25	CLAMP (OR MS21920-26)
8	44	44	CR3212-4-06	RIVET (OR M7885/3-4-06)
9	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC 299-947-100, TYPE II, CLASS 2 ADHESIVE)
10	A/R	A/R	SIKAFLEX-241/-291	SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT)

GENERAL NOTES:

1) MATERIAL. MANUFACTURED FROM D6019-128

FINISHED LENGTH = 126 528+0.020 (BEFORE BENDING/TRIMMING)
2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4 2 PAINT OUTSIDE PER DART QSI 005 4 2

TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED UNITS: INCHES UNLESS OTHERWISE NOTED.

- BREAK SHARP EDGES, 0.005 TO 0 010 MAX.
 IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: D212-664-147 = 24.2 lbs (PER IIN-D212-664) D212-664-147B = 24 2 lbs (PER IIN-D212-664)
 PART IS SYMMETRIC ABOUT CENTERLINE.

- WHEN MACHINING TAPER, RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALY, TRANSITION SHOULD
- 10) SEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON 0.0, EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED

 11) LIQUID PENETRANT INSPECT OUTSIDE SUFFACE OF CROSSTUBE PER QSI 038

- 12) INSTALL D2893-1 SUPPORT USING 0 03" TO 0 06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015 LET CURE FOR 12 HOURS AFTER INSTAL LATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1
- SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.

 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005° MAY BE BLENDED OUT LONGITUDINALLY CIRCUMFERENTIAL GRIND MARKS ARE
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING
- 16) INSTALL D3659-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT, WITH A LAYER OF SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN CUFF AND CROSSTUBE.
- SEAL EDGE OF CUFF TO ENSURE NO GAPS.

 17) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.

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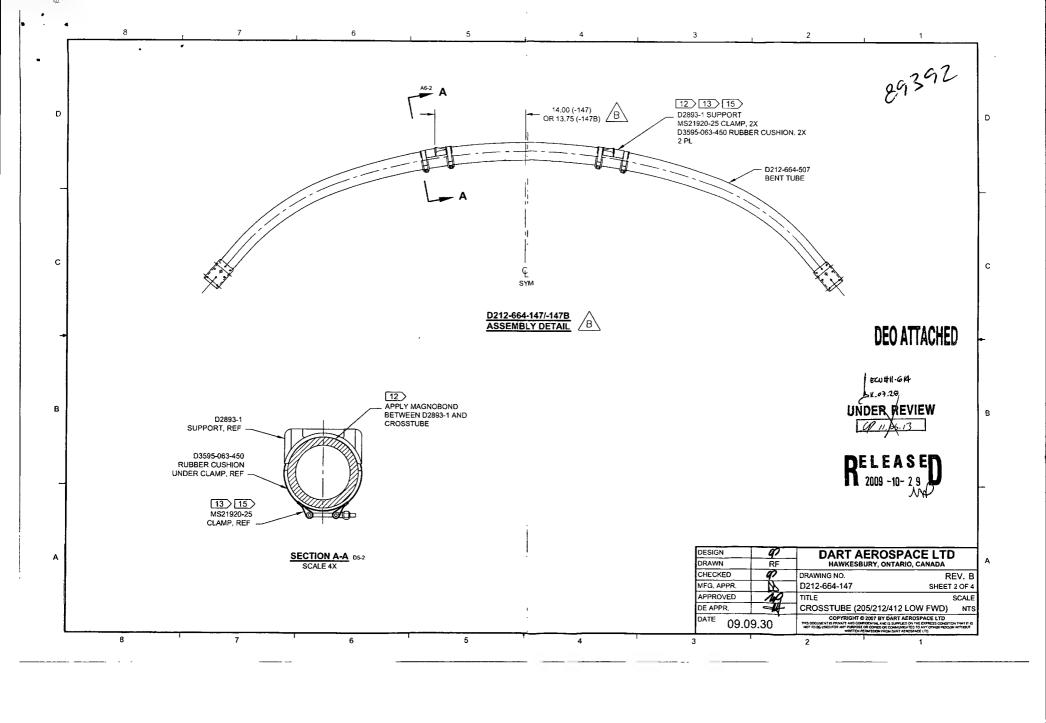
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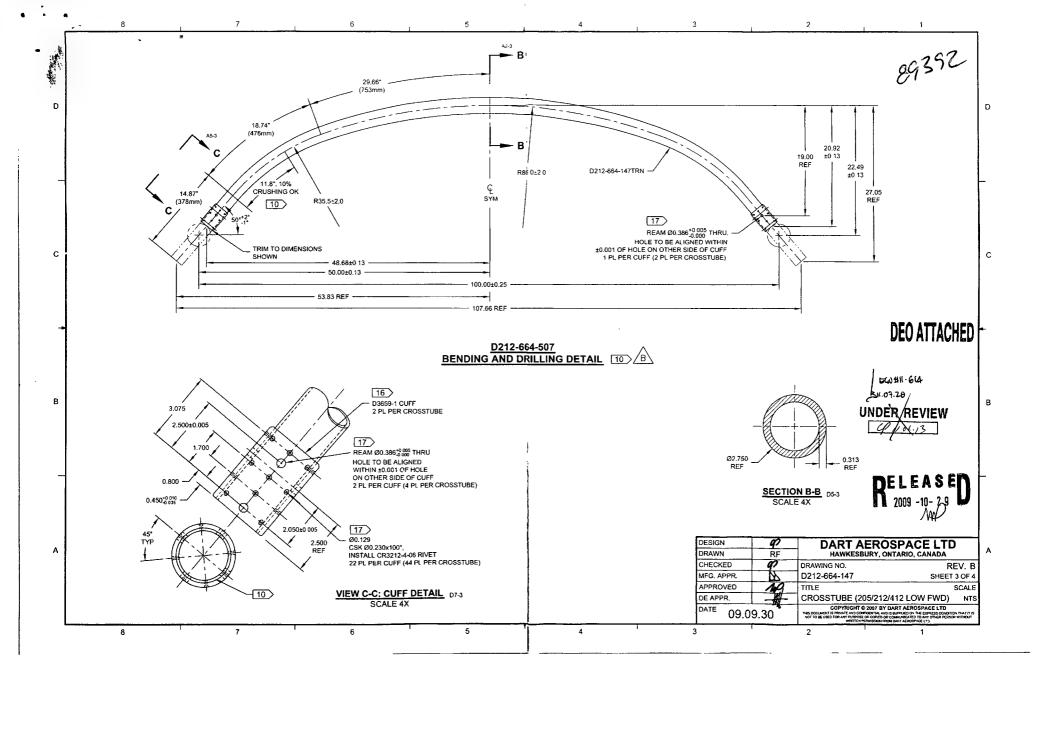
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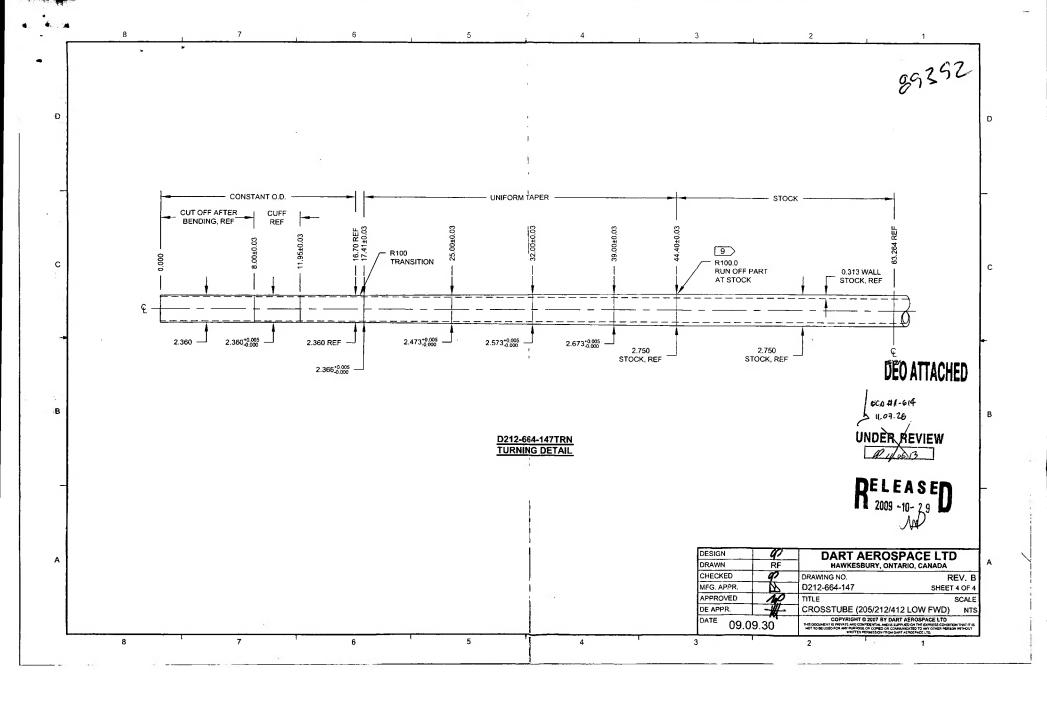
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MFG. AF	PPR.	- Z	D212-664-147	S	HEET 1 OF 4		
APPRO	VED	10	TITLE		SCALE		
DE APP	R.	-//	CROSSTUBE (205/212/412	LOW F	WD) NTS		
DATE	09.0	9.30	COPYRIGHT © 2007 BY DART / THIS DOCUMENT IS PREVATE AND CONFIDENTIAL AND IS SUPPLIANT TO BE USED FOR MAY PURPLISE OR COPED OR COMMAN WRITTEN OF PRINCIPAN DART A	ED ON THE EXPRE	SS CONDITION THAT IT IS		

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DRAWING NO.	TITLE	REV. B	DART AEROSP	ACE LTD D.E.O. N	0.	SHEE	T NO.	SCALE
D212-664-147	CROSSTUBE ASS'Y	(205 LOW FWD)	ENGINEERING	ORDER D212-6	64-147- <u>B</u> -1	SHEET	1 OF 1	NTS
DRAWN 4	CHECKED	NS	MFG. APPR.	APPROVED	Mp,	DE APPR.	-14	
DATE 11.0	7.15 DATE	11.07.20	DATE 11.07-	21 DATE	11/07/14	DATE	11.07.21	

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

item	Qty -147	Qty -147B	Part Number	Description
9	A/R	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

			,	
9	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023
				ADHESIVE (TEXTRON/BELL SPEC. 299-947-100,
				TYPE II, CLASS 2 ADHESIVE)

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

- 12) TO INSTALL D2893-1 SUPPORT: ABRADE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

WAS:

- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.



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PROJECT			(5	7)	
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JOB DESCRIPTION	PROCEDURE NO. LT	REV./DATE	2008	TECHNIQUE NO. LT	
CEG	17.0		MATERIAL A	Luninum	THICKNESS VALOUS
PARTIO:	, - m-ij		_ AL		•
SCOPE					
T-o-D					
TEST DETAILS METHOD Z FLUO	ORESCENT	VISIBLE	WATER WASI	H SOLVENT	REMOVABLE POST EMULSIFIED
FAMILY BRAND	FLUY		PLACK LIGHT S/N	V /6459 D OUTPUT >	1000 μW/cm ² ☐ AMBIENT < 2 fc
PENETRANT 267	MINIMUM DWELL TIME	4530 MIN.		ABINO	ELIGHT OUTPUT>100 fc SURFAC
PENETRANT REMOVER 420	MINIMUM DRY TIME	>10 Min. 10 Min.			CAL DUE DATE NOU 12
DEVELOPER SKD 52	MINIMUM DWELL TIME	10 Min. DRY	LIGHT WETER S		2012.
021220	COLOGO - AQUEOUS				
TEST SURFACE SURFACE CONDITION		ELDED	MACHINED	☐ SHOT BLASTED	CLEAN BARE METAL
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